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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,187	04/13/2004	Jeffrey R. Thomas	12364.01/YOD ITWO:0022--1	4047
7590	10/04/2005		EXAMINER	
Patrick S. Yoder FLETCHER YODER P.O. BOX 692289 Houston, TX 77269-2289			LEUNG, PHILIP H	
			ART UNIT	PAPER NUMBER
			3742	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/823,187	<b>Applicant(s)</b> THOMAS ET AL.	
	<b>Examiner</b> Philip H. Leung	<b>Art Unit</b> 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 13-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 13-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Upon further review, the drawings filed 4-13-2004 are objected to because the handwritings in Figure 8 needs to be removed. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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3. Claims 13 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Miller (US 3,022,368).

Miller shows an induction heating device, comprising: a flexible tube 35; a conductor 42 disposed within the flexible tube ; a first electrical connector 50 electrically coupled to a first end of the conductor; and a first fluid connector (53, 55, 56) disposed transverse to the first electrical connector and in fluid communication with the flexible tube.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller (US 3,022,368) (previously cited), in view of Moesta (US 1,548,204) (previously cited).

Miller shows an induction heating device, comprising: a flexible tube 35; a conductor 42 disposed within the flexible tube; an electrical connector 50 disposed at a first end of the flexible tube and electrically coupled to a first end of the conductor; and a fluid connector (53, 55, 56, 128) disposed adjacent to the electrical connector to enable cooling fluid to flow into the flexible tube. Therefore it shows every feature except for the use of a fluid connection to bypass the electrical connector (see Figures 1-14 and col. 2, line 8 – col. 5, line 53). Moesta shows that it is notoriously old and well known in the art of electric heating devices supplied with a flexible power cable 15 that includes a flexible conductor 11 connected to terminals 10 and 12 and fluid connectors 14 for cooling fluid to cool the conductors 11. The fluid T-connectors 14 are separate

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from the electrical terminals 10 and 12 and bypass the fluid from the connector terminals (see Figures 1-3 and page 1, line 90 – page 2, line 44). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Miller to use fluid connectors separate from the electrical connectors to allow the cooling fluid to bypass the electrical terminal connectors for a safer device, in view of the teaching of Moesta. In regard to claims 5 and 9, pipes 17 and 20 are claimed jumper hose.

6. Claims 1-5, 9, 14, 16, 17 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller (US 3,022,368), in view of Moesta (US 1,548,204), as applied to claims 13 and 18-21 above, and further in view of Haldeman (US 5,461,215) (previously cited).

Miller combined with Moesta shows a flexible fluid-cooled induction heating cable including every feature as claimed except for use of litz wire as the conductor for the induction cable. Haldeman shows a flexible fluid-cooled induction heating cable comprising: a litz wire 10 disposed within a hollow interior of the fluid-cooled induction heating cable 1; a first and a second electrical connector 2, each electrical connector being electrically coupled to the litz wire and a first and a second fluid connector 22 (see Figures 4-9 and col. 4, line 33 – col. 5, line 20). Therefore, therefore, Haldeman shows the use of litz wires as induction cable conductors is well known in the art of induction heating for its low loss characteristics. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Miller combined with Moesta to use litz wires as the induction heating cable conductors for better efficiency, in view of the teaching of Haldeman. In regard to claims 5 and 9, pipes 17 and 20 are claimed jumper hose.

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7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller (US 3,022,368), in view of Moesta (US 1,548,204), as applied to claims 13 and 18-21 above, and further in view of Emerson et al (US 3,674,971) (previously cited).

Miller combined with Moesta shows a flexible fluid-cooled induction heating cable including every feature as claimed except for the explicit showing that the fluid connector is a quick-disconnect type. Emerson shows an induction heating coil 10 with cooling manifold 14 connected to the coil with hoses 17 and 18 with quick disconnect fittings 20 (see Figures 1 and 2 and col. 1, lines 50-72). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Miller to use quick disconnect fluid connectors so that it can be quickly and easily connected or removed for a faster operation, in view of the teaching of Emerson.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller (US 3,022,368), in view of Moesta (US 1,548,204) and Haldeman (US 5,461,215), as applied to Claims 1-5, 9, 14, 16, 17 and 22-24 above, and further in view of Emerson et al (US 3,674,971) (previously cited).

Miller combined with Moesta and Haldeman shows a flexible fluid-cooled induction heating cable including every feature as claimed except for the explicit showing that the fluid connector is a quick-disconnect type. Emerson shows an induction heating coil 10 with cooling manifold 14 connected to the coil with hoses 17 and 18 with quick disconnect fittings 20 (see Figures 1 and 2 and col. 1, lines 50-72). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Miller to use quick disconnect fluid

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connectors so that it can be quickly and easily connected or removed for a faster operation, in view of the teaching of Emerson.

9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller (US 3,022,368), in view of Moesta (US 1,548,204) and Emerson et al (US 3,674,971), as applied to Claim 15 above, and further in view of, and further in view of Strickland, Jr. (US 2,457,843) (previously cited by the applicant).

Miller combined with Moesta and Emerson shows a flexible fluid-cooled induction heating cable including every feature as claimed except for the explicit showing that the cable is flexible enough to be able for wrapping around a pipe. However, such limitation is only an intended use statement and adds little patentable weight to the claimed structure. Anyway, Strickland, Jr. shows a flexible an induction heating cable 5 which is able to wrap around a tube 2 for heating (see Figure 1 and col. 1, lines 46-51). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Miller to use its flexible induction heating cable to heat any suitable workpieces including a pipe by wrapping it around the pipe to increase its utilities, in view of the teaching of Emerson. In regard to claim 8, again, as pointed out above, the use of litz wires as induction cable conductors is well known in the art of induction heating for its low loss characteristics.


10. Applicant's arguments filed 7-22-2005 have been fully considered but they are moot in view of the new grounds of rejection.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip H Leung whose telephone number is (571) 272-4782.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 472-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Philip H Leung  
Primary Examiner  
Art Unit 3742

P.Leung/pl  
9-29-2005